

FF-L-2740  
INT. AMENDMENT-3  
December 3, 1994  
SUPERSEDING  
Int. Amendment-2  
February 25, 1994

INTERIM AMENDMENT  
TO  
FEDERAL SPECIFICATION  
LOCKS, COMBINATION

This interim amendment was developed by the General Services Administration, Federal Supply Service, National Furniture Center, Washington, DC 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized the use of this interim amendment as a valid exception to FF-L-2740, dated October 12, 1989.

Page 1

At the bottom of the page, delete "FSC 7110" and substitute "FSC 5340".

Paragraph 1.1

Add a new sentence at the end of the paragraph, as follows: "The specification also addresses technical requirements for automatic deadbolt locks designed to be used in conjunction with surface mounted combination locks on strong room and secure area doors."

Paragraph 1.2

Line 2, delete "styles" and substitute "configurations".

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public release; distribution is unlimited.

FSC 5340

Add the following before Style II:

Configuration I - Combination lock

Delete "Style II - Manipulation, radiographic and thermal resistant."

Add the following after Size SD:

Configuration II - Pedestrian door combination deadbolt lock

Model KL - Key lock life safety feature

Model SL - Keyless life safety feature

Class DR - Drill resistant mounting plate

Class NDR - Non-drill resistant mounting plate

Class B - Basic, no exterior mounting plate

Strike #1 - Single or double door inswing mortise

Strike #2 - Single door outswing

Strike #3 - Single or double door inswing surface

Strike #9 - Double door outswing surface

Add a new paragraph as follows:

1.2.1 Reference Identification Number (RIN). A specification based Reference Identification Number to identify configurations, models, classes, types, sizes and strikes is addressed in paragraph 6.5 of this specification.

Page 3

Add the following to the end of paragraph 2.2.

National Fire Protection Association

NFPA 101 - Life Safety Code

(Application for copies should be addressed to the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.)

Page 4

Paragraph 3.2, line 5, delete "tested" and substitute "testing".

Page 5

Paragraph 3.4.6

Add the following new sentence: "The torque required to retract the bolt shall not exceed 50 inch-ounces (0.353 N-m)."

Page 6

Add new paragraphs:

3.4.13 Life safety feature. Pedestrian door combination deadbolt locks shall be designed with a life safety feature in the form of a bolt hold back feature meeting the requirements of NFPA 101. The life safety feature shall be designed to hold the deadbolt in a non-locked position when the deadbolt is retracted. The life safety feature must be able to prevent inadvertent or malicious engagement while the area being protected is occupied, and ensure a quick, safe exit in the case of an emergency. The life safety feature shall be of two different models. Model KL shall be equipped with a key lock. Model SL shall be equipped with a keyless device.

3.4.13.1 Key lock life safety feature. The bolt hold back feature on Model KL locks shall use a conventional key cylinder. Each Model KL lock shall be furnished with two keys.

3.4.14 Automatic deadbolt mechanism. The pedestrian door locks shall have a trip device that will, when the lock bolt is extended, automatically extend the deadbolt into the locked position upon release of the hold back feature and mechanism engagement of the strike.

3.4.15 Strikes. The pedestrian door lock shall have interlocking strikes to prevent jamming or spreading the door frame. The strikes shall be as shown in Figure 5. Each deadbolt shall be furnished with a strike as specified (see 6.5.2).

3.4.16 Drill resistant feature. When Class DR is specified, the pedestrian door lock shall be supplied with a drill resistant

plate. The drill resistant plate shall prevent penetration by drilling for a period of 20 minutes. The Class DR lock shall include an exterior mounting plate that is designed to sandwich the door and increase the strength of the lock mount. The mounting plate shall be designed for doors between 1-5/8" (41.3 mm) and 1-3/4" (44.4 mm) thick and shall be adjustable to doors within this range without modification or substitution of parts. The mounting plate shall be mounted to the exterior surface of the door, and the dial ring shall be affixed to it. The mounting plate and decorative stainless steel cover shall be maximum 5/8" (15.9 mm) thick, minimum 5-5/8" (142.9 mm) wide and 5" (127 mm) high, overall, with a stainless steel decorative cover. The height and width of the plate shall not vary by more than 1/8" (-3.2 mm) and in no case may the plate interfere with the door stop on the jamb.

3.4.17 Mounting plate. When Class NDR is specified, the pedestrian door lock shall be provided with a mounting plate (A36 steel or equivalent) that is designed to sandwich the door and increase the strength of the lock mount. The mounting plate shall be designed for doors between 1-5/8" (41.3 mm) and 1-3/4" (44.4 mm) thick and shall be adjustable to doors within this range without modification or substitution of parts. The plate shall be mounted to the exterior surface of the door, and the dial ring shall be mounted to it. The plate and decorative stainless steel cover shall be maximum 5/8" (15.9 mm) thick, minimum 5-5/8" (142.9 mm) wide and 5" (127 mm) high overall. The height and width of the mounting plate shall not vary by more than 1/8" (-3.2 mm) and in no case may the mounting plate interfere with the door stop on the jamb.

3.4.18 Escape feature. The bolt shall be able to be retracted from inside the area being secured, when the lock is locked and the deadbolt extended, without use of a key or other device. When so retracted, the bolt shall automatically be held in a retracted position when the door is open, and shall automatically extend into the locked position upon mechanism engagement of the strike.

Paragraph 3.5.2

Delete the sentence beginning, "When a graduated dial is provided...", and substitute the following:

"When a graduated dial is provided, the dial shall be numbered with distinct divisions to facilitate reading."

At the end of paragraph 3.5.2, add the following sentences:

"Size LD locks shall have a dial not less than 3" (76 mm) in diameter. Size SD shall have a dial less than 3" (76 mm) in diameter."

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Paragraph 3.5.6

Delete the paragraph and substitute:

3.5.6 Lock bolt. Unless otherwise specified, the lock bolt cross section shall be 0.310"  $\pm 0.005$ " by 0.995"  $+0.005$ ",  $-0.003$ " (7.87 mm  $\pm 0.13$  mm by 25.27 mm  $+0.13$  mm,  $-0.08$  mm). The bolt throw shall be not less than 0.312" (7.92 mm). Any variations in the bolt dimensions shall be approved by the activity responsible for the lock qualification.

Add new paragraph.

3.5.6.1 Configuration II lock bolt. On the pedestrian door lock, the exposed portion of the deadbolt shall have hardened steel pin inserts. The cross section and configuration of the deadbolt on the pedestrian door lock shall be as required for the proper functioning of the lock.

Paragraph 3.6.4

Delete "priviledged" and substitute "privileged".

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Add new paragraph:

3.9 Instructions. Manufacturer's instructions, normally furnished in commercial practice, describing how to mount and

operate the lock shall be furnished with each lock. Instructions for pedestrian door locks shall cover the combination lock as well as the deadbolt. This requirement does not apply to locks shipped in bulk to container or vault door manufacturers.

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Paragraph 4.2

Add to the end of the paragraph, after item (d):

- (e) Operating temperature test - 4.5.2.5
- (f) Inspections - 4.6

Paragraph 4.4.3

Change paragraph number from 4.4.3 to 4.4.2

Page 11

Table II

Add new sentence under Packaging defects.

Keys not in unit container with lock as specified (Model KL only).

Page 12

Paragraph 4.5.1.4, first line.

Delete "Ten test samples" and substitute "Twenty test samples".

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Paragraph 4.5.2.1

Delete "3.4.10" and substitute "3.4.9."

Add new paragraph:

4.5.2.1.1 Life safety feature operation test. The deadbolt and life safety feature of the pedestrian door lock shall be

subjected to 10,000 cycles of operation without replacement of any component. One cycle shall consist of:

- a. Bolt retraction (using interior bolt retraction device)
- b. Activate the life safety feature
- c. Deactivate the life safety feature
- d. Extend the deadbolt (door strike plate contact to depress the trip device)

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Delete paragraph 4.5.2.3, and add the following paragraphs:

4.5.2.3 Case and bolt strength. Locks shall be tested as specified in paragraphs 4.5.2.3.1 and 4.5.2.3.2.

4.5.2.3.1 Configuration I. Mount the lock on a test stand so that the bolt extends at least 0.10 inches (2.54 mm) beyond the edge of the stand, as shown in Figure 2. Apply a force of 600 pounds to the bolt as shown in the Figure. Examine the case and bolt for damage. Any fracture or bending of the bolt or case shall be a failure. Apply a force of 600 pounds as shown in Figure 3. Any fracture or bending of the bolt or case or movement of the bolt more than 0.10 inches shall be a failure.

4.5.2.3.2 Configuration II. Mount the lock on a test stand as shown in Figure 2A. Apply a force of 600 pounds to the bolt as shown in the Figure. Examine the case and bolt for damage. Any fracture or bending of the bolt or case shall be a failure. Apply a force of 200 pounds to the bolt as shown in Figure 3A. Any fracture or bending of the bolt or case, or damage to internal components shall be a failure.

Add new paragraphs:

4.5.2.5 Temperature tests.

4.5.2.5.1 Low temperature test. The lock shall be placed in a chamber maintained at a temperature of -10°F for a period of three hours or until the lock temperature has stabilized. At the end of that period, without removing the lock from the chamber, ten attempts, using normal dialing procedures, shall be made to open the lock. The lock shall open at least six out of ten times.

Slower than normal operation of electro-mechanical lock designs is not considered failure. After ten attempts, the lock shall be removed from the chamber and allowed to return to room temperature. Ten more opening attempts shall be made. The lock shall open all ten times. The lock shall be examined for any damage or defects due to the low temperature exposure. There shall be no defects affecting the operation or life of the lock.

4.5.2.5.2 High temperature test. The lock shall be placed in a chamber maintained at a temperature of 155°F for a period of three hours. At the end of that period, the lock shall be removed from the chamber and without allowing time for the lock to cool, the lock shall be opened five times using normal dialing procedures. The lock shall then be placed back in the chamber and the temperature shall be increased to 170°F. After one hour, the lock shall be removed from the chamber and an attempt shall be made to open it. The lock bolt shall be blocked in the locked position.

4.6 Inspections. A visual inspection shall be made to determine compliance with the requirements specified in the following paragraphs:

- 3.3.3 Materials
- 3.4.1 Hand change locks
- 3.4.2 Key change locks
- 3.4.3 Bolt lockout
- 3.4.4 Combinations
- 3.4.5 Lock operation
- 3.4.6 Lock bolt operation
- 3.4.7 Combination redial
- 3.4.8 Case access
- 3.4.9 Wheel torque
- 3.4.13 Life safety feature
- 3.4.14 Automatic deadbolt mechanism
- 3.4.15 Strikes
- 3.4.18 Escape feature
- 3.5.2 Dial and dial rings
- 3.5.3 Spindle
- 3.5.4 Tubes
- 3.5.5 Case and cover
- 3.5.6 Lock bolt
- 3.5.7 Finish



- 3.5.8 Workmanship
- 3.7 Marking
- 3.9 Instructions

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## Paragraph 6.2

Delete item (b) and substitute the following:

- b. Configuration, model, class, type, size and strike (as appropriate).

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## Paragraph 6.4

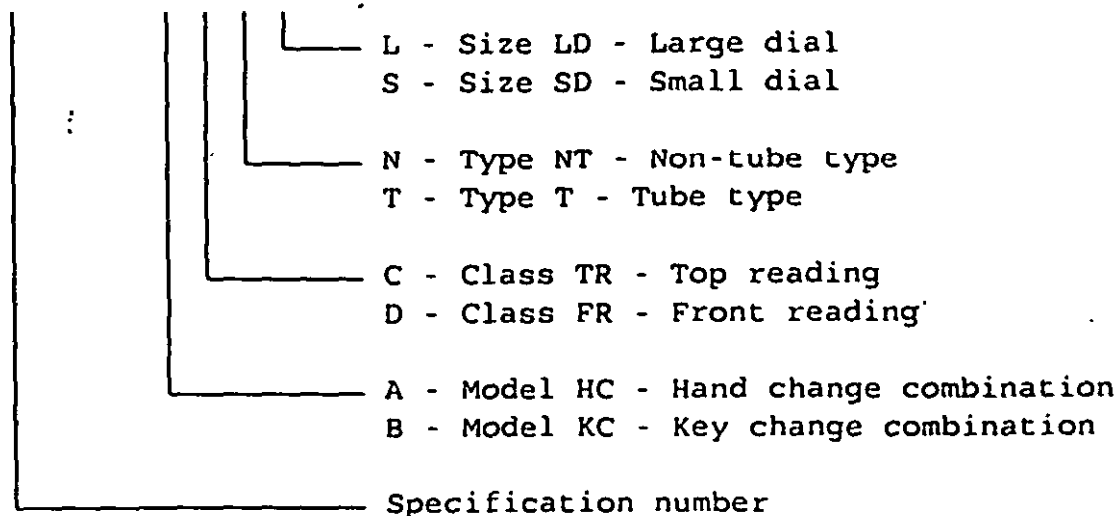
Delete "og" and substitute "of".

Delete paragraph 6.5 and substitute the following:

6.5 Reference identification number. The reference identification number (RIN) system may be used for items covered by this specification. An example of the RIN is as follows:

For combination locks:

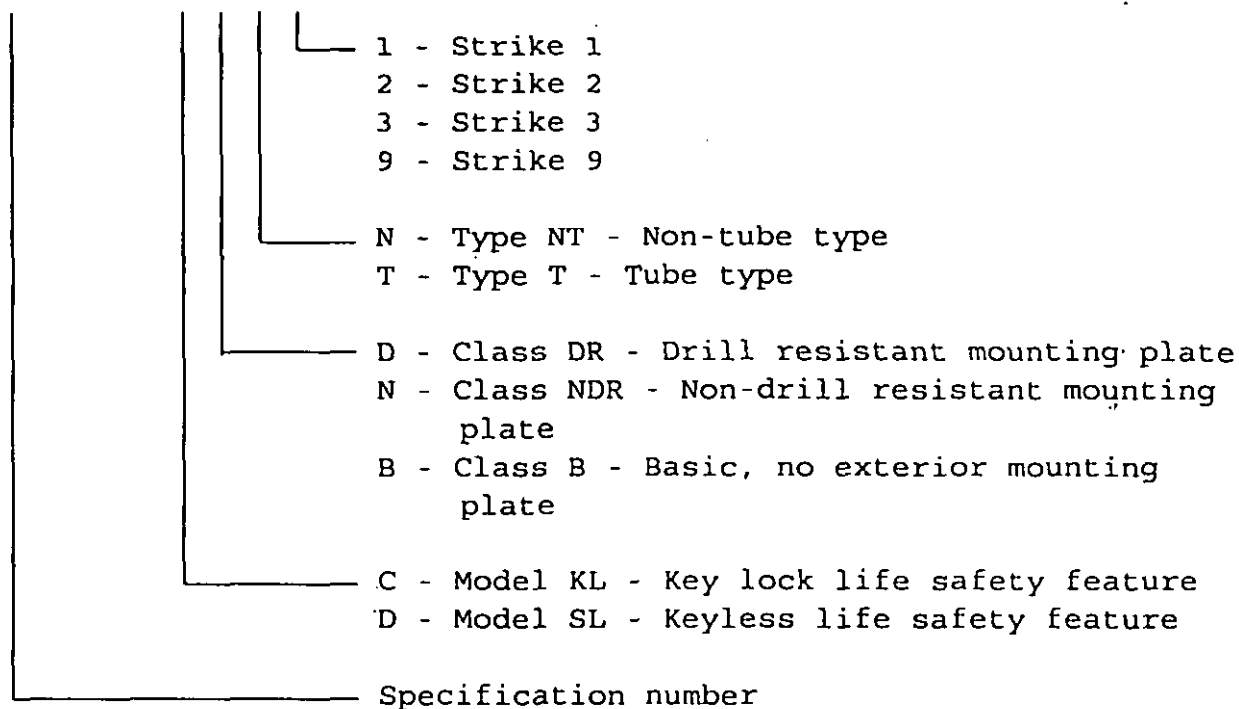
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For pedestrian door combination deadbolt locks:

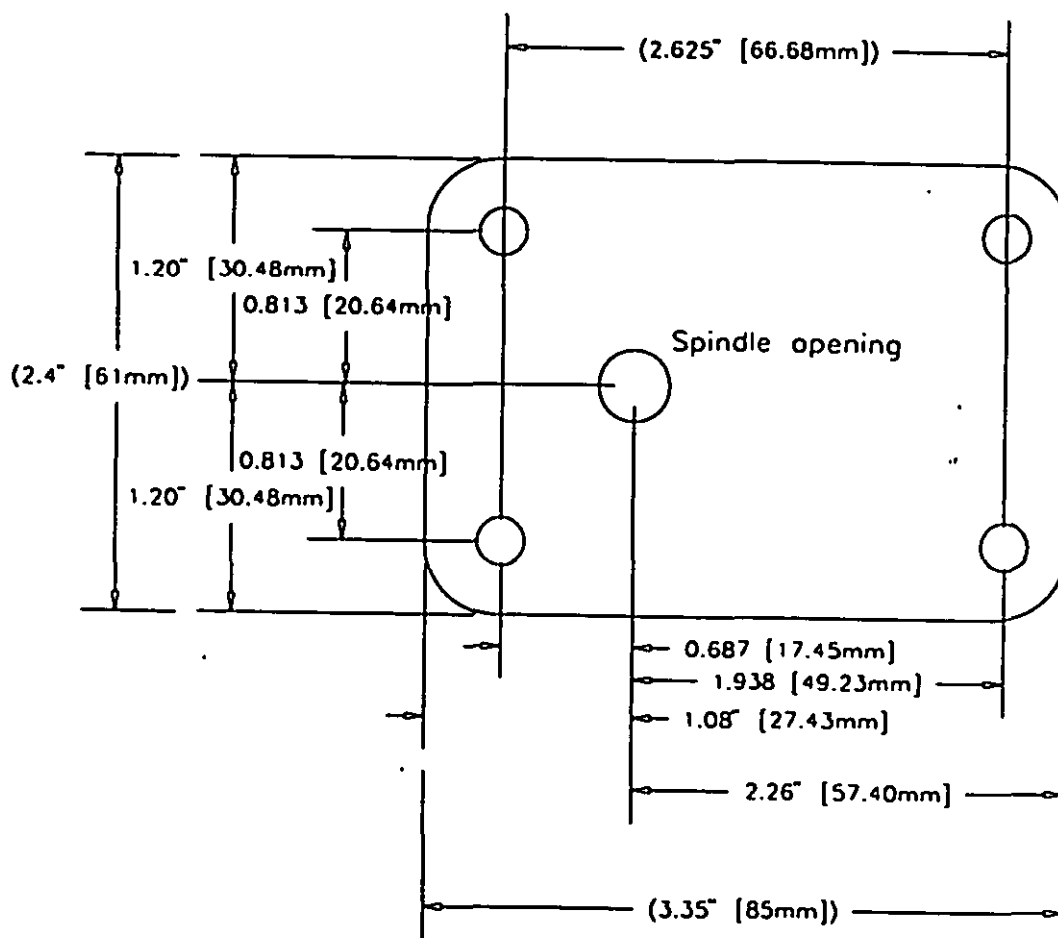
FFL2740 - C D N 1



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Delete Figure 1 and substitute the attached Figure 1.

Add new Figures 2a, 3a, 4 and 5.



Tolerances:  
 XX.XX ±0.01 [±0.25 mm]  
 XX.XXX ±0.005 [±0.13 mm]

FIGURE 1  
 Schematic arrangement of lock case holes.

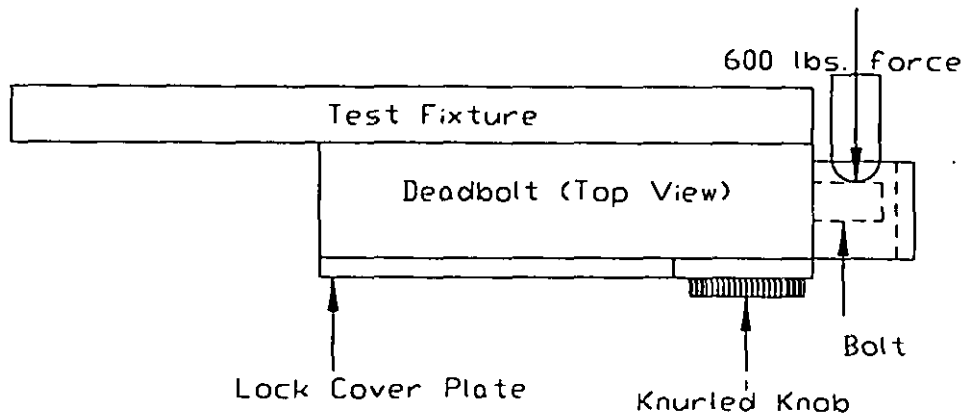


Figure 2a - Case and Bolt Strength Test

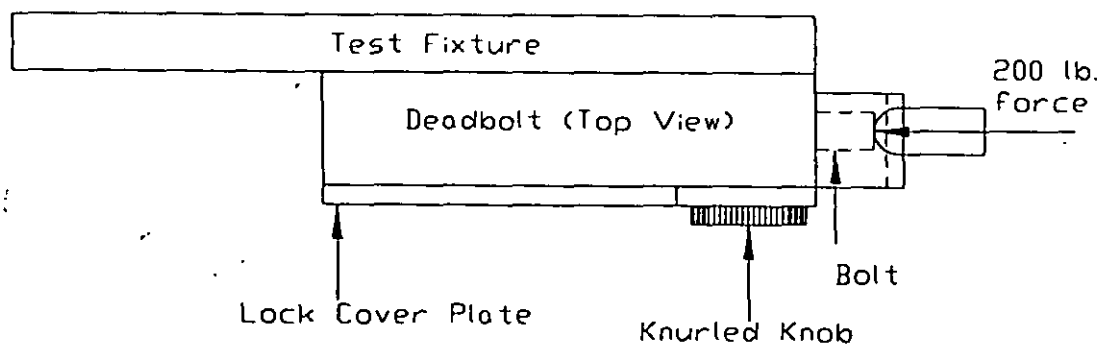


Figure 3a - Bolt End Pressure Test

## Pedestrian Door Lock Test Fixture

- (1) Vertically mounted, 3/8 inch thick steel plate approx. 19 inches wide by 11 inches.
  - (2) Drilled and topped to allow for mounting deadbolt.
  - (3) Hinged to allow for cyclic test using strike.
- Alternatively, the lock may be mounted to a fixed plate with the strike mounted to a moveable fixture.

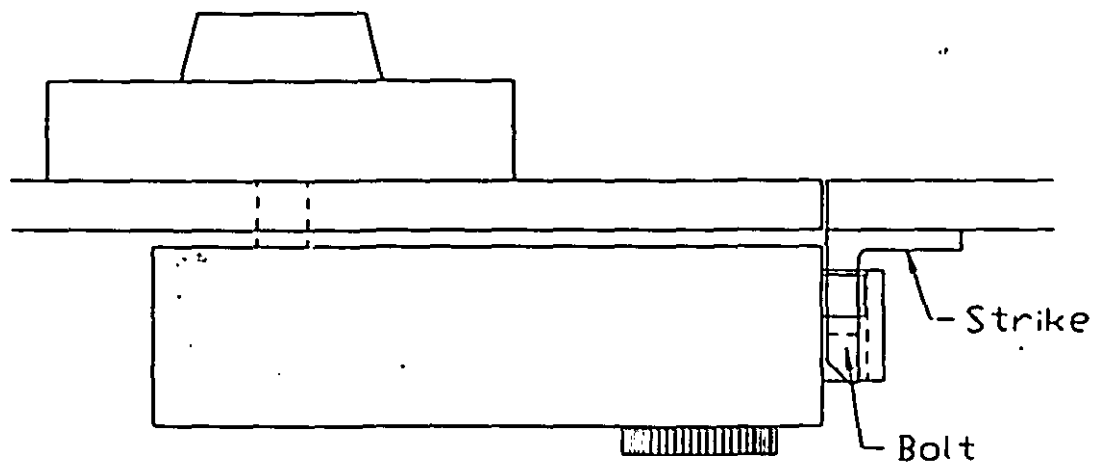


Figure 4 - Test Fixture Configuration

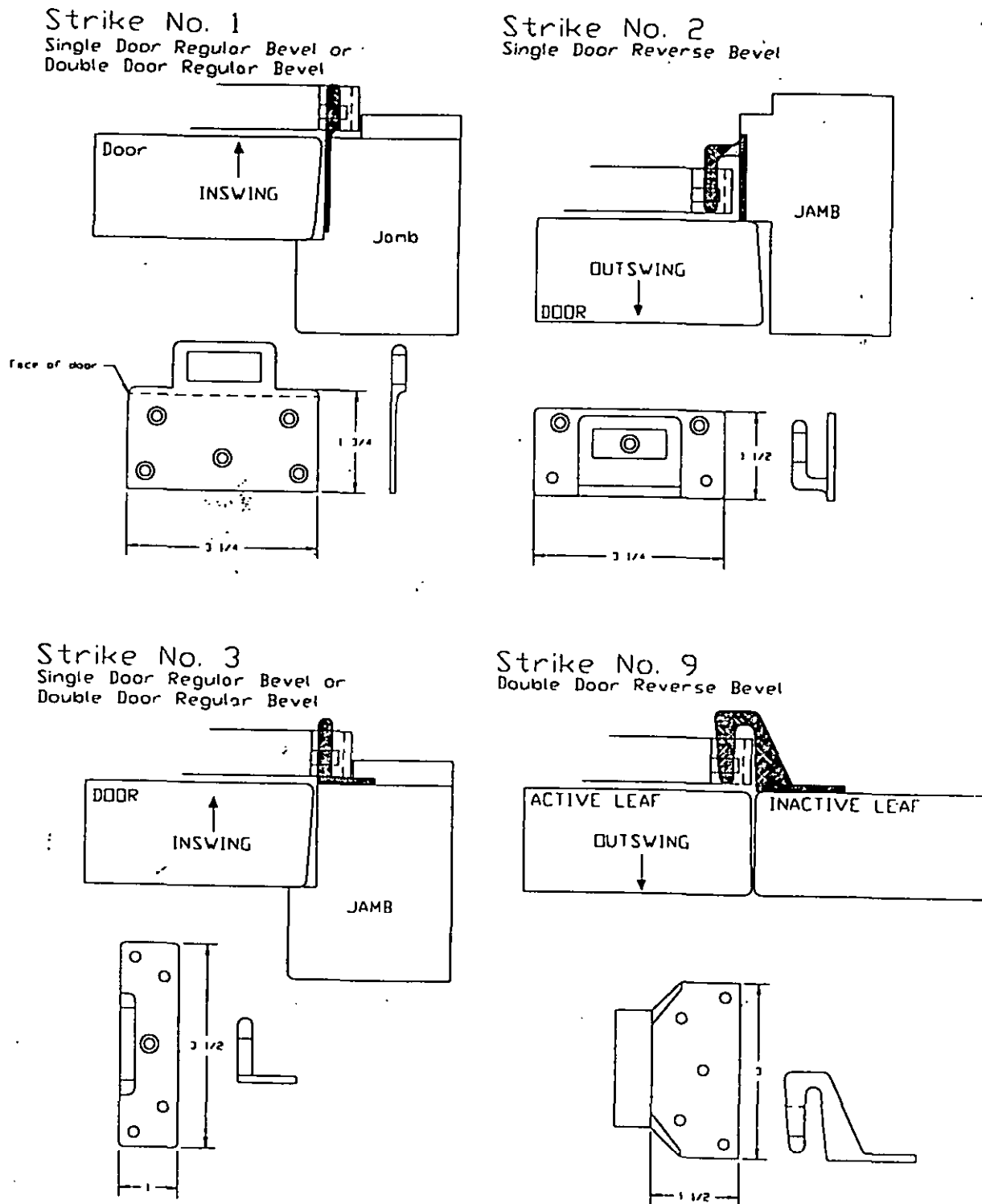


FIGURE 5 - Strike Configurations